SEQUENCE LISTING

(1) GENERAL INFORMATION:

    (i) APPLICANT:
        (A) NAME: bioMérieux B.V.
        (B) STREET: Postbus 84
        (C) CITY: Boxtel
        (E) COUNTRY: The Netherlands
        (F) POSTAL CODE (ZIP): 5280 AB

    (ii) TITLE OF INVENTION: Nucleic acid sequences that can be used as primers and probes in the amplification and detection of SARS Coronavirus.

    (iii) NUMBER OF SEQUENCES: 47

    (iv) COMPUTER READABLE FORM:
        (A) MEDIUM TYPE: Floppy disk
        (B) COMPUTER: IBM PC compatible
        (C) OPERATING SYSTEM: PC-DOS/MS-DOS
        (D) SOFTWARE: PatentIn Release #1.0, Version #1.25 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 134 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

TACCTCTCCA GCTAGGATTT TCTACAGGTG TTAACTTAGT AGCTGTACCG

ACTGGTTATG TTGACACTGA AAATAACACA GAATTCACCA GAGTTAATGC

5 AAAACCTCCA CCAGGTGACC AGTTTAAACA TCTT 134

(2) INFORMATION FOR SEQ ID NO: 2:

(i) SEQUENCE CHARACTERISTICS:

10   (A) LENGTH: 89 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

15   (ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

ATGAATTACC AAGTCAATGG TTACCCTAAT ATGTTTATCA CCCGCGAAGA

20 AGCTATTCGT CACGTTCGTG CGTGGATTGG CTTTGATGT 89

(2) INFORMATION FOR SEQ ID NO: 3:

(i) SEQUENCE CHARACTERISTICS:

25   (A) LENGTH: 28 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

30   (ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

TCCACCAGGT GACCAGTTTA AACATCTT 28

35

(2) INFORMATION FOR SEQ ID NO: 4:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 26 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

TAGTAGCTGT ACCGACTGGT TATGTT   26

(2) INFORMATION FOR SEQ ID NO: 5:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 23 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

TACCTCTCCA GCTAGGATTT TCT   23

(2) INFORMATION FOR SEQ ID NO: 6:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 24 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

5

ATGAATTACC AAGTCAATGG TTAC   24

(2) INFORMATION FOR SEQ ID NO: 7:

10   (i) SEQUENCE CHARACTERISTICS:
               (A) LENGTH: 20 base pairs
               (B) TYPE: nucleic acid
               (C) STRANDEDNESS: single
               (D) TOPOLOGY: linear
15

          (ii) MOLECULE TYPE: DNA

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

20   GAAGCTATTC GTCACGTTCG   20

(2) INFORMATION FOR SEQ ID NO: 8:

          (i) SEQUENCE CHARACTERISTICS:
25   (A) LENGTH: 21 base pairs
               (B) TYPE: nucleic acid
               (C) STRANDEDNESS: single
               (D) TOPOLOGY: linear

30   (ii) MOLECULE TYPE: DNA

          (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

TGCGTGGATT GGCTTTGATG T   21

35

(2) INFORMATION FOR SEQ ID NO: 9:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 53 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

AATTCTAATA CGACTCACTA TAGGGAAGAT GTTTAAACTG GTCACCTGGT GGA 53

(2) INFORMATION FOR SEQ ID NO: 10:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 51 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

AATTCTAATA CGACTCACTA TAGGGAACAT AACCAGTCGG TACAGCTACT A 51

(2) INFORMATION FOR SEQ ID NO: 11:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 48 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

AATTCTAATA CGACTCACTA TAGGGAGAAA ATCCTAGCTG GAGAGGTA 48

(2) INFORMATION FOR SEQ ID NO: 12:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 56 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

GTTCGTGCGT GGATTGGCTT TGATGTAGAG GGCTGTCATG CAACTAGAGA
TGCTGT 56

(2) INFORMATION FOR SEQ ID NO: 13:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 38 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

CCATGGGCTG TCATGCAACT AGAGATGCTG TCCCATGG 38

(2) INFORMATION FOR SEQ ID NO: 14:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 53 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

TCAGCCCCAG ATGGTACTTC TATTACCTAG GAACTGGCCC AGAAGCTTCA
CTT   53

(2) INFORMATION FOR SEQ ID NO: 15:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 21 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

TCAGCCCCAG ATGGTACTTC T 21

(2) INFORMATION FOR SEQ ID NO: 16:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 26 base pairs
        (B) TYPE: nucleic acid

              (C) STRANDEDNESS: single
              (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA
         (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

TAGGAACTGG CCCAGAAGCT TCACTT   26

(2) INFORMATION FOR SEQ ID NO: 17:

         (i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 123 base pairs
              (B) TYPE: nucleic acid
              (C) STRANDEDNESS: single
              (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

AGGTTTACCC AATAATACTG CGTCTTGGTT CACAGCTCTC ACTCAGCATG
GCAAGGAGGA ACTTAGATTC CCTCGAGGCC AGGGCGTTCC AATCAACACC
AATAGTGGTC CAGATGACCA AAT   123

(2) INFORMATION FOR SEQ ID NO: 18:

         (i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 23 base pairs
              (B) TYPE: nucleic acid
              (C) STRANDEDNESS: single
              (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

AGGTTTACCC AATAATACTG CGT   23

(2) INFORMATION FOR SEQ ID NO: 19:

     (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 23 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

AGATTCCCTC GAGGCCAGGG CGT   23

(2) INFORMATION FOR SEQ ID NO: 20:

     (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 22 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

ATAGTGGTCC AGATGACCAA AT   22

(2) INFORMATION FOR SEQ ID NO: 21:

     (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 628 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

5   (ii) MOLECULE TYPE: DNA

       (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

```
     GGCTACTACC GAAGAGCTAC CCGACGAGTT CGTGGTGGTG ACGGCAAAAT
10   GAAAGAGCTC AGCCCCAGAT GGTACTTCTA TTACCTAGGA ACTGGCCCAG
     AAGCTTCACT TCCCTACGGC GCTAACAAAG AAGGCATCGT ATGGGTTGCA
     ACTGAGGGAG CCTTGAATAC ACCCAAAGAC CACATTGGCA CCCGCAATCC
     TAATAACAAT GCTGCCACCG TGCTACAACT TCCTCAAGGA ACAACATTGC
     CAAAAGGCTT CTACGCAGAG GGAAGCAGAG GCGGCAGTCA AGCCTCTTCT
15   CGCTCCTCAT CACGTAGTCG CGGTAATTCA AGAAATTCAA CTCCTGGCAG
     CAGTAGGGA AATTCTCCTG CTCGAATGGC TAGCGGAGGT GGTGAAACTG
     CCCTCGCGCT ATTGCTGCTA GACAGATTGA ACCAGCTTGA GAGCAAAGTT
     TCTGGTAAAG GCCAACAACA ACAAGGCCAA ACTGTCACTA AGAAATCTGC
     TGCTGAGGCA TCTAAAAAGC CTCGCCAAAA ACGTACTGCC ACAAAACAGT
20   ACAACGTCAC TCAAGCATTT GGGAGACGTG GTCCAGAACA AACCCAAGGA
     AATTTCGGGG ACCAAGACCT AATCAGACAA   630
```

(2) INFORMATION FOR SEQ ID NO: 22:

25   (i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 39 base pairs
              (B) TYPE: nucleic acid
              (C) STRANDEDNESS: single
              (D) TOPOLOGY: linear
30
          (ii) MOLECULE TYPE: DNA

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

35   CCATGGGCTA CTACCGAAGA GCTACCCGAC GACCCATGG   39

(2) INFORMATION FOR SEQ ID NO: 23:

   (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 59 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

TGCTCCAAGT GCCTCTGCAT TCTTTGGAAT GTCACGCATT GGCATGGAAG
TCACACCTT   59

(2) INFORMATION FOR SEQ ID NO: 24:

   (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 26 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

   (ii) MOLECULE TYPE: DNA

   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

TGCTCCAA GTGCCTCTGC ATTCTT 26

(2) INFORMATION FOR SEQ ID.NO: 25:

   (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 21 base pairs
        (B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

TTGGCATGGA AGTCACACCT T   21

10   (2) INFORMATION FOR SEQ ID NO: 26:

(i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 128 base pairs
        (B) TYPE: nucleic acid
15   (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

20   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

CCAAACTGTC ACTAAGAAAT CTGCTGCTGA GGCATCTAAA AAGCCTCGCC
AAAAACGTAC TGCCACAAAA CAGTACAACG TCACTCAAGC ATTTGGGAGA
CGTGGTCCAG AACAAACCCA AGGAAATT   128
25

(2) INFORMATION FOR SEQ ID NO: 27:

(i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 25 base pairs
30   (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

35

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

CCAAACTGTC ACTAAGAAAT CTGCT 25

5

(2) INFORMATION FOR SEQ ID NO: 28:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 23 base pairs
10
    (B) TYPE: nucleic acid
    (C) STRANDEDNESS: single
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA
15

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

CTCAAGCATT TGGGAGACGT GGT 23

20   (2) INFORMATION FOR SEQ ID NO: 29:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 21 base pairs
    (B) TYPE: nucleic acid
25
    (C) STRANDEDNESS: single
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

30   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

CAGAACAAAC CCAAGGAAAT T   21

(2) INFORMATION FOR SEQ ID NO: 30:
35

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

5

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

10

CCATGGACCA AGACCTAATC AGACAACCAT GG 32

(2) INFORMATION FOR SEQ ID NO: 31:

15   (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 72 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

20

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

25 TGCCTATATG GAAGAGCCCT AATGTGTAAA ATTAATTTTA GTAGTGCTAT
CCCCATGTGA TTTTAATAGC TT 72

(2) INFORMATION FOR SEQ ID NO: 32:

30   (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 19 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

35

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

5   TGCCTATATG GAAGAGCCC 19

(2) INFORMATION FOR SEQ ID NO: 33:

(i) SEQUENCE CHARACTERISTICS:
10   (A) LENGTH: 23 base pairs
              (B) TYPE: nucleic acid
              (C) STRANDEDNESS: single
              (D) TOPOLOGY: linear

15   (ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

TCCCCATGTG ATTTTAATAG CTT 23
20

(2) INFORMATION FOR SEQ ID NO: 34:

(i) SEQUENCE CHARACTERISTICS:
              (A) LENGTH: 112 base pairs
25   (B) TYPE: nucleic acid
              (C) STRANDEDNESS: single
              (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA
30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

TACGATACAT AGTCTACTCT TGTGCAGAAT GAATTCTCGT AACTAAACAG
CACAAGTAGG TTTAGTTAAC TTTAATCTCA CATAGCAATC TTTAATCAAT
35 GT 112

(2) INFORMATION FOR SEQ ID NO: 35:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 23 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

TACGATACAT AGTCTACTCT TGT 23

(2) INFORMATION FOR SEQ ID NO: 36:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 22 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

TAACTAAACA GCACAAGTAG GT 22

(2) INFORMATION FOR SEQ ID NO: 37:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 20 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single

              (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA

5   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

    TAGCAATCTT TAATCAATGT 20

    (2) INFORMATION FOR SEQ ID NO: 38:
10

            (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 22 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
15   (D) TOPOLOGY: linear

        (ii) MOLECULE TYPE: DNA

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:
20
    GCCACCACAT TTTCATCGAG GC   22

    (2) INFORMATION FOR SEQ ID NO: 39:

25   (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 46 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear
30
        (ii) MOLECULE TYPE: DNA

        (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

35 AATTCTAATA CGACTCACTA TAGGGAGAAG TACCATCTGG GGCTGA 46

(2) INFORMATION FOR SEQ ID NO: 40:

    (i) SEQUENCE CHARACTERISTICS:
5
        (A) LENGTH: 51 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

10   (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

AATTCTAATA CGACTCACTA TAGGGAAGTG AAGCTTCTGG GCCAGTTCCT
15 A 51

(2) INFORMATION FOR SEQ ID NO: 41:

    (i) SEQUENCE CHARACTERISTICS:
20
        (A) LENGTH: 49 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

25   (ii) MOLECULE TYPE: DNA

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

AATTCTAATA CGACTCACTA TAGGGAAGAA TGCAGAGGCA CTTGGAGCA 49
30
(2) INFORMATION FOR SEQ ID NO: 42:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 46 base pairs
35   (B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:

AATTCTAATA CGACTCACTA TAGGGAAGGT GTGACTTCCA TGCCAA 46

10   (2) INFORMATION FOR SEQ ID NO: 43:

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 44 base pairs
    (B) TYPE: nucleic acid
15   (C) STRANDEDNESS: single
    (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

20   (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:

AATTCTAATA CGACTCACTA TAGGGGGGCT CTTCCATATA GGCA 44

(2) INFORMATION FOR SEQ ID NO: 44:
25

(i) SEQUENCE CHARACTERISTICS:
    (A) LENGTH: 48 base pairs
    (B) TYPE: nucleic acid
    (C) STRANDEDNESS: single
30   (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:
35

AATTCTAATA CGACTCACTA TAGGGAAGCT ATTAAAATCA CATGGGGA 48

(2) INFORMATION FOR SEQ ID NO: 45:

5   (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 32 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear
10

      (ii) MOLECULE TYPE: DNA

      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

15 CGCGATGTTC GTGCGTGGAT TGGCTTATCG CG 32

(2) INFORMATION FOR SEQ ID NO: 46:

       (i) SEQUENCE CHARACTERISTICS:
20   (A) LENGTH: 24 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear

25   (ii) MOLECULE TYPE: DNA

      (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

GCTGTCATGC AACTAGAGAT GCTGT 24
30

(2) INFORMATION FOR SEQ ID NO: 47:

       (i) SEQUENCE CHARACTERISTICS:
35   (A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

5   (ii) MOLECULE TYPE: DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:

CCATGCGCCA CCACATTTTC ATCGAGGCAT GG 32